

# Does the use of Intraoperative Angiography Reduce the Incidence of Postoperative Wound Complications in Complex Ortho-plastic Reconstructions?

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## BACKGROUND & METHODS

### Background

Postoperative wound complications pose serious challenges to successful soft tissue coverage after orthopaedic resections. Intraoperative laser angiography via indocyanine green (ICG) has recently become a valuable tool in assessing tissue perfusion and potentially decreasing complications in other procedures, but its use in orthopaedic oncology has yet to be studied. The purpose of this study is to compare wound complications in ortho-plastic reconstructions treated with or without laser assisted ICG angiography (ICG).

### Methods

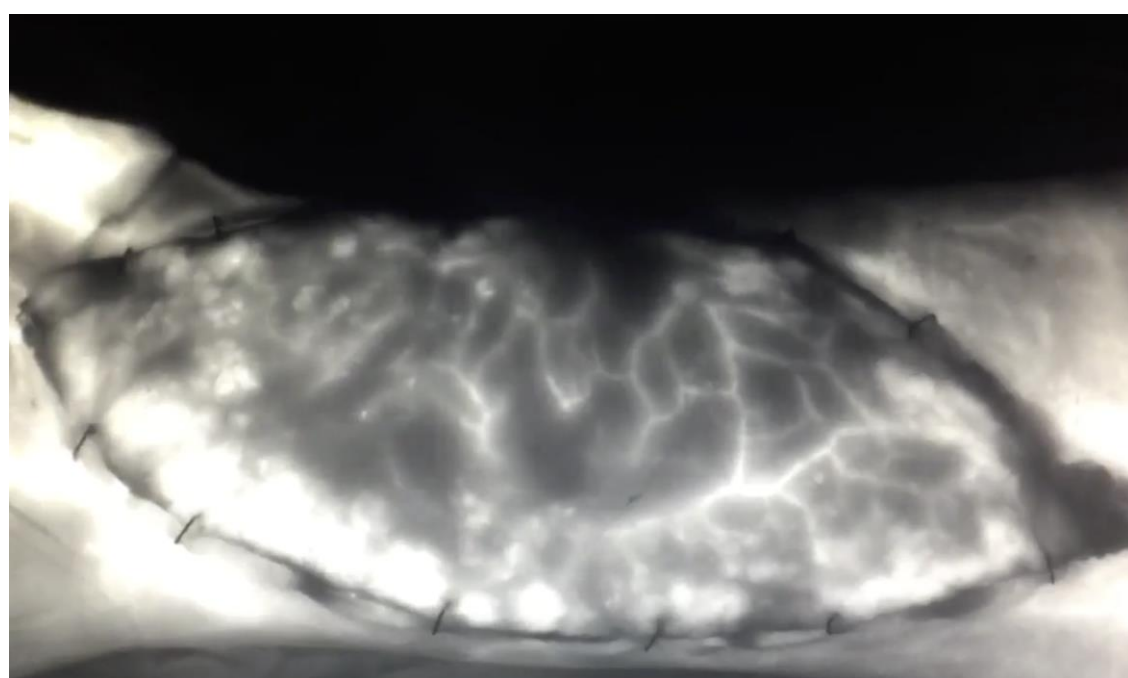
Thirty-three patients undergoing complex orthopaedic resections and reconstruction with plastic surgery soft tissue coverage treated at a single institution from 2010-2018 were retrospectively reviewed. Patients with plastic surgery reconstruction utilizing ICG angiography (n=7) were compared to those without, Non-ICG (n=26). Patient information including age, primary diagnosis, follow-up duration, defect size and postoperative wound complications were collected for analysis.

**Table 1. Patient Demographics**

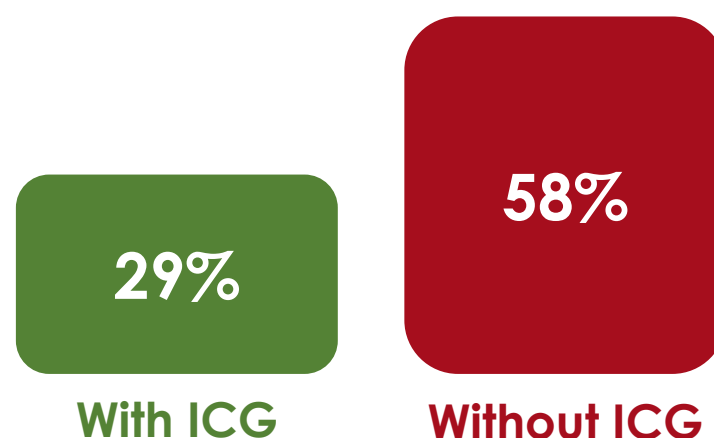
	ICG	Non-ICG
<b>N</b>	7	26
<b>Mean Age</b>	39.0±22.7 years	45.0±25.9 years
<b>Mean Follow-up</b>	21.7 months	92.4 months
<b>Mean Defect Size</b>	384.0 cm <sup>2</sup>	298.0 cm <sup>2</sup>
<b>Post-Op Wound Complication Rate</b>	2 (28.6%)	15 (57.7%)
<b>Diagnosis</b>		
Bone Tumor	4 (57.1%)	16 (61.5%)
Soft Tissue Tumor	1 (14.3%)	3 (15.3.6%)
Non-oncologic reconstruction	2 (28.6%)	7 (23.1.6%)

## RESULTS

- Mean age at initial surgery was 39.0±27.9 years and 45.3±25.9 for the ICG and Non-ICG groups, respectively.
- Primary diagnosis between groups was similar, including bone tumor (57.1% vs. 61.5%), soft tissue tumor (14.3% vs. 15.4%) and non-oncologic reconstruction (28.6% vs. 23.1%) for ICG and Non-ICG groups, respectively.
- Mean follow-up for the ICG group was 21.7 months and Non-ICG was 92.4 months.
- Mean defect size was similar between ICG and Non-ICG groups (384.0cm<sup>2</sup> vs. 298.0cm<sup>2</sup>).
- **Postoperative wound complications occurred in 58% of Non-ICG patients (15/26) at a mean of 15.0 months, compared to 29% of ICG patients (2/7) at a mean of 1.0 months.**



### Wound Complications With Versus Without Use of ICG



## CONCLUSION

The incidence of postoperative wound complications after complex ortho-plastic reconstructions remains high in this at-risk population. The utilization of ICG angiography resulted in fewer postoperative wound complications, and may assist surgeons intra-operatively to determine viability of skin and soft tissue after resection. Long-term follow-up and prospective studies are needed to further investigate this trend.